

66396-033

GRADIENT CALCULATING CAMERA BOARD

**Abstract of the Disclosure**

In a machine vision system utilizing computer processing of image data, an imaging module incorporates the image sensor as well as pre-processing circuitry, for example, for performing a background subtraction and/or a gradient calculation. The pre-processing circuitry may also compress the image information. The host computer receives the pre-processed image  
5 data and performs all other calculations necessary to complete the machine vision application, for example, to determine one or more wheel alignment parameters of a subject vehicle. In a disclosed example useful for wheel alignment, the module also includes illumination elements, and the module circuitry provides associated camera control. The background subtraction, gradient calculation and associated compression require simpler, less expensive circuitry than for  
10 typical image pre-processing boards. Yet, the pre-processing at the imaging module substantially reduces the processing burden on the host computer when compared to machine vision implementations using direct streaming of image data to the host computer.